PARAKIEFFERIELLA WUELKERI N. SP. (DIPTERA: CHIRONOMIDAE) FROM WESTERN EUROPE AND NORTH AFRICA

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Wülker (1957) described the pupa of this new species as *Parakiefferiella* sp. d from specimens collected in Spain (Rio Guadarrama, near Madrid; a river near Malaga) and partially described the female from a pharate adult. Material from northern Algeria (Oued Boubchir, a temporary affluent of the river Sebaou) allows a full description of the adult male and female.

Abbreviations used. AR antennal ratio: ratio of length of apical flagellomere divided by the combined length of the more basal flagellomeres. VR venarum ratio: ratio of length of Cu to length of M. SCf sensilla campaniformia. LR leg ratio: ratio of metatarsus length to tibial length. SV ratio of femur plus tibia length to metatarsus length. BR ratio of longest seta of tarsal segment 1 divided by minimum width of tarsal segment 1. HR hypopygium ratio: ratio of gonocoxite length to gonostylus length. HV hypopygium value: ratio of total body length to length of gonostylus times 10.

DESCRIPTION

Parakiefferiella wuelkeri n. sp.

Type material. Holotype adult male, rhithral of Oued Boubchir, affluent of River Sebaou, Algeria, 30 m above sea level, 17.iii.87; paratypes, three adult males, three pharate adult males, same data as holotype. Holotype and paratypes deposited in Zoologische Staatssammlung, Munich.

Adult male (n = 3), total length 1.8–2.0 mm. Brownish; mesonotal patches brown, halteres pale.

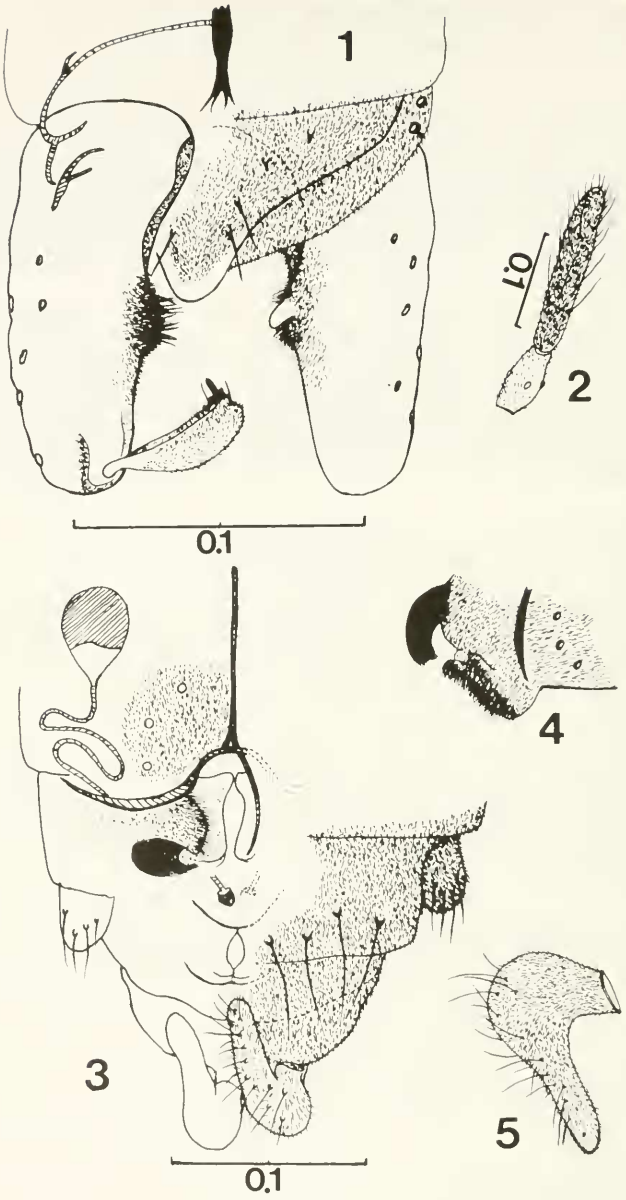
Head. Antenna length 670–685 μm, AR 0.40–0.45, 13-segmented, ultimate flagellomere 167–169 μm long. Four postorbitals, 75 μm long. Orbitals and outer verticals absent. Cibarial pump 103–109 μm long. Tentorium 105 μm long, 12 μm wide. Eyes bare. Palp segments 27, 29, 38–44, 50–54, 56–74 μm long; sensilla clavata absent. Clypeus with 6–7 setae (66 μm long).

Thorax. 3 antepronotals, 5–6 acrostichals, 4–5 dorsocentrals, 3 prealars, and 3 scutellars in one row. Wing 1.23–1.24 mm long, VR 1.30–1.35; membrane with fine granulation visible at 200×; SCf 1–2; veins and squama bare; Cu2 strongly curved for apical half. Legs: second and third segments of hind tarsi subequal; mean length (μm) and proportions:

	fem	tib	tar 1	tar 2	tar 3	tar 4	tar 5	LR	BV	SV	BR
Pair 1	369	478	247	178	111	69	63	0.52	2.60	3.43	2.6–2.8
Pair 2	413	384	167	112	98	51	54	0.43	3.06	4.77	2.7–2.8
Pair 3	403	456	217	137	136	63	59	0.48	2.72	3.96	3.6–3.8

Abdomen. Setae of tergites I–VIII uniformly distributed, on each side: I 6, 3/3; II 8, 4/4; III 8, 4/4; IV 8, 4/4; V 10, 5/5; VI 8–10; VII 8–10; VIII 10–12.

Hypopygium (Fig. 1). Anal point 34–37 μm long, very broad, maximum width 36–46 μm, width at apex 15–18 μm, rounded apically and bearing 4–7 setae. Virga 34–42 μm long. Inferior volsella triangular with a very characteristic thumb-like lobe 4–6 μm long, transparent and rounded apically, its ventral margin with 10–12 stout



Figs 1–5. *Parakiefferiella wuelkeri*. Male, 1: hypopygium dorsal and ventral. Female, 2: last two flagellomeres of antenna, 3: genitalia, dorsal and ventral, 4: lobes of gonapophysis VIII, lateral view, 5: cercus, lateral view scales in mm.

setae. Gonostylus 48–54 μm long, of normal *Parakiefferiella* type, curved medially and without crista dorsalis; apical tooth 9–11 μm long. HR 2.55–2.65. HV 3.73.

Female imago (n = 2). Material: three female imagines, three pharate adult females; same data as holotype. Material deposited in Zoologische Staatssammlung, Munich. Total length. 1.9–2.1 mm. Brownish; mesonotal patches clearer than in male, last flagellomere of antenna darkened.

Head. Antenna 5-segmented, 237 μm long, AR 1.10–1.15, last flagellomere 89–94 μm long, uniformly elongated (Fig. 2), maximum width 17 μm; sensillum chaeticum present. Palp segments 18, 32, 44, 76 μm long.

Wing. 1.145–1.165 mm long.

Genitalia (Fig. 3). Tergite IX with 6–8 setae; sternite VIII with 3 setae. Gonocoxite 32–34 μm long, bearing 5–6 setae. Seminal capsule 42–49 μm long, 30–33 μm wide, pear-shaped, sclerotized for apical 28–32 μm. Notum 95–98 μm long. Lobes of gonapophysis VIII as in Figs 3 and 4, ventrolateral lobe triangular in both dorsal and lateral view. Cercus (Fig. 5) 73–75 μm long, with 16–20 setae, hook-like in lateral view.

Remarks

Parakiefferiella wuelkeri n. sp. and *P. dentifera* Wülker are very similar species. They resemble each other in the following characters: male imago—shape of anal point and lobe of inferior volsella; pupal exuviae (Wülker 1957, Langton 1991)—general ornamentation of abdominal segments. However, *P. wuelkeri* is easily distinguished from *P. dentifera* by the following combination of characters: male imago—lobe of inferior volsella thumb-like in *P. wuelkeri*, nose-like in *P. dentifera*; pupal exuviae—tergite II without trace of hook row in *P. dentifera*. The genitalia of *P. wuelkeri* differ from other described females in this genus (Sæther 1977, Moubayed 1991), delimiting a separate group within the genus on the following two principal characters: shape of ventral lobe of gonapophysis VIII (triangular in *P. wuelkeri*, rounded in other species), and setation pattern of tergites VIII and IX.

Ecology and distribution

P. wuelkeri inhabits lowland parts of temporary small rivers (Oued). In Algeria the maximum emergence is in March and April. It is known only from south west Europe: Spain (Wülker, 1957), Tunisia (Boumaiza & Laville, 1988) and Morocco (Azzouzi *et al.*, 1992). Due to its very limited geographical distribution, this species probably represents, as with *Cricotopus beckeri* Hirvenoja (Hirvenoja & Moubayed, 1989), a Tyrrhenian faunal element essentially confined to the western subregion of the western Mediterranean.

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BOOK REVIEW

Monitoring butterflies for ecology and conservation by E. Pollard and T. J. Yates, London, Chapman and Hall, 1993, xiv + 274 pages, £35, hardback.—Since the butterfly monitoring scheme was started up at Monks Wood in 1976 by Ernest Pollard and Jeremy Thomas, butterfly counts have become, for many professionals and amateurs alike, a regular part of summer life. This book details the methods and aims of weekly butterfly counts and discusses those aspects of butterfly biology that can be, and have been, elucidated from the accumulated data of the counts. Over 90 sites throughout Britain are now recorded by the transect method (walking along a set route once a week monitoring the butterflies within an imaginary 5 metre box ahead of the walker).

It is quite a revelation to read just how much can be gleaned from the raw data of these walks. Part of the book is devoted to the broad biological aspects of the results such as migration patterns, flight periods, stability or otherwise of local and national distribution, and influence of weather on population size. The most striking finding has been the close synchrony in rise and fall of many butterfly populations from year to year across all the recording locations. This suggests that local factors (e.g. predation/parasitism) are of little significance compared to one overall factor (i.e. the climate). In several places in these chapters the authors can draw only partial conclusions as more distinct and clear patterns will emerge as the data accumulates over the years.

Later chapters look at a number of widely distributed and local species, considering their absolute abundance and changes thereof, effects of weather, and flight periods. A selection of monitored sites are then examined in relation to how butterfly populations fluctuate over time with changes in habitat.

Butterfly counts do not give the detailed results of individual population studies, but their broader picture of trends in populations is a new perspective. It is a source of envy in other countries just how well documented is the fauna and flora of our islands—better than anywhere else in the world. These present studies have added a new layer of information to our knowledge that nevertheless indicates just how much we still have to learn about even our commonest butterflies.

This book is well laid out with clear graphs and tables and a few monochrome pictures. Whilst heavy with data and thoughts based on it, the information is wisely split up by frequent subheadings in each chapter, making it easy to dip into. The fact that this is, effectively, an intermediate 'state of play' assessment of a continuing study and not a finished reference book no doubt influences its high price; it is not perhaps a book that every general naturalist will purchase. It is however a very well presented examination of current work and a valuable contribution to our developing understanding of this best studied group of insects. All who read it will find that, when it comes to thinking about butterfly biology in a broad sense, their horizons will have been expanded.

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